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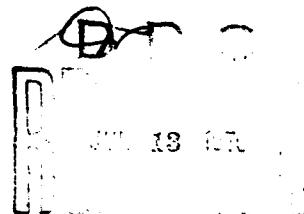
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SUPPLEMENT 1

TO

H. O. PUB 1-IR
CATALOG OF INFORMAL REPORTS

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U. S. Naval Oceanographic Office
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1 March 1970

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NOTE

The Catalog of Informal Reports (HO Pub 1-IR) was printed in 1968. Since then two errata were published. This Supplement cancels the errata and updates the catalog as of 1 March 1970.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 68-34	COMPARISON OF OBJECTIVE AND SUBJECTIVE ENVIRONMENTAL ANALYSES, by B. J. Thompson, 1968, 30 pp. Objective and subjective techniques often yield contrasting analyses of oceanic thermal structure for the same time period. The causes of the contrast and comparison and verification of the resulting charts are discussed in this report.
IR 68-46	ICELAND SEA-SURFACE TEMPERATURE SURVEY - APRIL 1968, by R. L. Pickett and G. L. Athey, 1968, 12 pp. An airplane equipped with an infrared radiation thermometer measured sea surface temperatures around Iceland in early April 1968. Sea ice prevented surveys directly north of the island. Temperatures to the northeast ranged from 0°C at the ice boundary to 4°C at the prime meridian.
IR 68-52	APPLICATIONS OF UNDERWATER PHOTOGRAVIMETRY, by J. Pollio, 1968, 37 pp. Photogrammetry "the science or art of obtaining reliable measurements by means of photography" has had little use underwater. The reason for this is in part due to the added constraining conditions imposed upon photography taken for photogrammetric analysis. The Deep Vehicles Branch, NAVOCEANO recently conducted an underwater photogrammetric mapping test to investigate the importance of these constraints with a calibrated 70mm underwater camera (Rebikoff-modified Shippek) mounted on the wet submersible PEGASUS. The results of this test are presented in this publication.
IR 68-56	TEMPERATURE, SALINITY AND DENSITY OF THE WORLD'S SEAS - EAST CHINA SEA, by S. E. Seim, D. R. Hamilton, 1968, 91 pp. This report is part of a series describing the temperature, salinity and density of various seas of the world.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 68-58	OBSERVATIONS OF GULF STREAM MEANDERS - MARCH-APRIL 1967, by E. L. Corton, 1968, 19 pp. This report describes an investigation of the northern edge of the Gulf Stream between 67° and 71° W.
IR 68-62	DESIGN AND OPERATIONAL PERFORMANCE OF MANNED SUBMERSIBLES, by R. F. Busby, 1968, 30 pp. The work performed by these vehicles has been varied in an attempt to evaluate these vehicles as surveying platforms and to establish operational techniques.
IR 68-63	HYDRA SURVEY SYSTEM DEVELOPMENT, TEST AND EVALUATION, by J. N. Spinning, D. G. Dixon and M. G. Paradis, 1968, 41 pp. This publication discusses the development of a prototype hydrographic digital positioning and depth recording system (HYDRA Survey System). It also presents results of experimental test surveys conducted with the prototype HYDRA Survey System (HYDRA 1) at AUTEC Site 1 in the Bahamas and the modified HYDRA Survey System (HYDRA 2) near Ft. Walton Beach, Florida.
IR 68-64	OCEANOGRAPHIC CRUISE SUMMARY - ROSS SEA, ANTARCTICA FEBRUARY 1968, by M. Car and L. A. Codispoti, 1968, 21 pp. This report presents the results of a two-phase operation conducted in Antarctica by NAVOCEANO personnel in February 1968. The first phase was a study of the currents in Antarctica and the second phase consisted of occupying the annual ice potential stations in the Ross Sea in support of NAVOCEANO's Antarctic Ice Prediction Program.
IR 68-66	SEISMIC PROFILER TESTS CONDUCTED ABOARD USNS LYNCH (T-AGOR 7) IN THE BAHAMAS AND PUERTO RICO TRENCH DURING MARCH 1967, by Q. Carlson, 1968, 25 pp. Seismic profiler tests were conducted aboard USNS LYNCH with EG&G's AGOR II Marine Seismic Profiling System. Shipboard recording and processing techniques are described and profiles are presented across Straits of Florida, at the exit of Northeast Providence Channel, east of San Salvador and over the Puerto Rico Trench.
IR 68-67	OCEANOGRAPHIC CRUISE SUMMARY - CAM RANH BAY - NHA TRANG-POULO CONDORE GROUP - DECEMBER 1965 - MARCH 1966, by D. E. Kenney, 1968, 24 pp. This report

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IR 68-67	presents results of a hydrographic/oceanographic survey conducted off the coast of the Republic of Vietnam aboard the USS SERRANO (AGS 24). The objectives of this survey were (1) to provide bottom sediment and current information to aid in the construction of hydrographic charts and (2) to gather temperature, salinity, oxygen and water visibility data in a strategic area.
IR 68-68	WEIGHTING FACTORS AND CONFIDENCE LIMITS FOR SYNOPTIC SONIC LAYER DEPTH ANALYSES, by E. Khedouri, 1968, 15 pp. This report presents the results of a study to derive weighting factors for data used in synoptic SLD analyses, and to determine the range of SLD variability that may be expected within a given period after an analysis has been completed. It was found that common criteria of variability can be employed in the entire western North Atlantic; and relative weighting factors, derived from the equation, are proposed.
IR 68-69	STATUS REPORT ON OMEGA AND A NAVOCEANO TEST, by D. J. Findlay, 1968, 30 pp. OMEGA is a very low frequency (VLF) navigation system of extremely long range. When fully operational, the system will cover the entire world with eight transmitters.
IR 68-72	USE OF SATELLITE PHOTOGRAPHS TO SUPPLEMENT AERIAL ICE INFORMATION, by G. J. Potocsky, 1968, 13 pp. This report discusses the advantages and disadvantages of aircraft reconnaissance and satellites as sources of ice information. It is found that satellites serve as a valuable supplement to aircraft reconnaissance by indicating boundaries, large water openings and general concentrations, and are capable of providing large areal coverage.
IR 68-73	THREE DIFFERENT TECHNIQUES OF COLOR SEPARATION APPLIED TO CHARTING AND PRINTING, by D. D. Choha, 1968, 26 pp. This publication discusses a modified process color separation technique which has been successfully applied to reproduce one NAVOCEANO aeronautical chart series. A significant reduction in press operating time resulted.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 68-74	SHIP ANEMOMETER HEIGHTS ABOVE MEAN WATER LEVEL, by D. C. Bunting, 1968, 20 pp. The high degree of sensitivity of computed ocean wave spectra to wind speeds requires not only high accuracy in wind speed measurements but also a knowledge of the heights above mean water level at which the observations are taken. This paper contains a tabular listing of the anemometer heights on as many ships so equipped as were available at this writing.
IR 68-75	COMPARISON OF SHEAR STRENGTH MEASUREMENTS WITH THE LABORATORY VANE SHEAR AND FALL-CONE DEVICES, by R. S. Kessler and N. T. Stiles, 1968, 22 pp. The report presents a comparison of strength values measured with laboratory vane shear and fall-cone devices. A trend of the data toward linearity is suggested by correlation testing. However, the fall-cone and vane shear devices do not yield the same strength values. No definite relationship between tests made axi- ally and radially to the core was found.
IR 68-76	SATELLITE PHOTOGRAPHY AS A MEANS OF DETERMINING WATER TEMPERATURE STRUCTURE, by P. E. LaViolette and S. E. Seim, 1968, 16 pp. This report shows how continuous coverage of the earth by satellite is a tempting tool to oceanographers in determin- ing the relationship of moving cloud patterns with the thermal structure of the water.
IR 68-77	A TECHNIQUE FOR THE LOCATION OF BURIED SAND AND GRAVEL DEPOSITS IN SHALLOW WATER AREAS, by L. Bres- lau and H. Edgerton, 1968, 13 pp. The location and delineation of buried sand and gravel deposits in shallow water areas can be accomplished by continu- ous seismic profiling from a ship underway. The continuous seismic profiling technique operates on the principle of generating an acoustic pulse in the water and recording the arrival times of acoustic echoes from the bottom and sub-bottom on an analogue correlation recorder. A survey in the Gulf of La Spezia, Italy resulted in the mapping of a sand and gravel bar buried more than ten feet below the floor of this mud-bottomed area.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 68-78	A RIVERBANK ECHO-RANGING SYSTEM FOR RIVERINE POSITIONING, by L. Breslau, R. Tittle, D. Krotser and J. Fletcher, 1968, 20 pp. This paper is a study of the feasibility of an echo-ranging system for riverine positioning. A commercial side-scan sonar was used for the field experiments. The system was tested in Boston Harbor, Massachusetts, which has man-made embankments; and in the Apalachicola River, Florida, which has natural riverbanks.
IR 68-80	TEMPERATURE, SALINITY AND DENSITY OF THE WORLD'S SEAS: BERING SEA, by D. R. Hamilton and S. E. Seim, 1968, 80 pp. This report is part of a series of studies describing the temperature, salinity, and density of various seas of the world. This part covers the Bering Sea.
IR 68-81	FREE FIELD INPUT DATA FORMATTING SCHEME, by W. E. Yergen, 1968, 8 pp. A "free field data formatting scheme" is submitted as a "tool for storing a maximum data volume in limited computer memory reserves." Some applications of the formatting of ocean station data are provided as examples of technique. The advantages and disadvantages of this formatting scheme are discussed.
IR 68-82	OCEAN SURVEYING FROM MANNED SUBMERSIBLES, by R. F. Busby and J. M. Costin, 1968, 26 pp. This publication discusses the performance of the bathyscaphes and second generation manned submersibles in relation to oceanographic/engineering surveys. Although little, if any, ocean surveying <u>per se</u> has been performed from submersibles, sufficient observations exist to indicate that surface-conducted surveying may produce an erroneous impression of the bottom and near-bottom environment.
IR 68-83	A MARINE MAGNETIC-TOPOGRAPHIC SURVEY - SAN DIEGO, CALIFORNIA TO THE EQUATOR, by G. V. Shaeffer, 1968, 13 pp. This report presents and describes the 5250 km (2835 nautical miles) of magnetic and bathymetric information collected by the USNS CHARLES H. DAVIS (T-AGOR 5) during March 1967 as part of NAVOCEANO's support of the Eastern Tropical Pacific (EASTROPAC) Investigation.

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IR 68-84	OCEANOGRAPHIC OBSERVATIONS IN THE EASTERN TROPICAL PACIFIC - MARCH 1967, by G. V. Shaeffer, W. W. Van Atta and S. W. Dorey, 1968, 66 pp. This publication presents oceanographic data collected along the 85th meridian in the Eastern Tropical Pacific during March 1967. Temperature, salinity, dissolved oxygen, phosphate and silicate concentrations are presented graphically.
IR 68-85	TSUNAMIS AND SEISMIC SEICHES REPORTED FROM THE WESTERN NORTH AND SOUTH ATLANTIC AND THE COASTAL WATERS OF NORTHWESTERN EUROPE, by W. H. Berninghausen, 1968, 50 pp. This publication is a listing of data on the majority of waves of seismic origin. Part I gives information on tsunamis and other large waves which have been reported from the western North and South Atlantic, while Part II gives similar information for the coastal waters of northwestern Europe.
IR 68-86	A GUIDE TO BIOLOGICAL SOUND-SCATTERING DATA COLLECTION AND INTERPRETATION, by E. Medina, Jr., 1968, 26 pp. June 1966 marked the beginning of an accelerated effort on the part of the Biological Section to collect and analyze increased quantities of data on the phenomenon of biological sound scattering in the sea. It was found that previous data lacked sufficient detail concerning the nature and distribution of biological sound scattering in the ocean which resulted in the redesign of data collection sheets and modifications in data collection procedures.
IR 68-87	SUITCASE OCEANOGRAPHY, by A. H. Haynes and B. L. Avery, 1968, 22 pp. Recent developments in microelectronics and packaging techniques offer expanding opportunities to the oceanographic community for developing new highly flexible, portable data acquisition and processing systems. These "suitcase" systems will permit certain types of oceanographic survey work to be performed from non-oceanographic vessels or ships of opportunity. Since ship time represents a substantial portion of the overall cost of oceanographic data acquisition, significant savings are offered by the suitcase oceanography concept.
IR 68-88	OCEANOGRAPHIC CRUISE SUMMARY - RECONNAISSANCE SURVEY OF SEA OF JAPAN, by J. M. Wageman, 1968, 10 pp. This publi-

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IR 68-88	cation presents results of an oceanographic survey conducted in the Sea of Japan during February 1968. Continuous seismic profiling, bathymetric, sound velocity and bathythermograph data were collected to further the knowledge of the area.
IR 68-89	A SELECTED BIBLIOGRAPHY OF GEOLOGY AND GEOPHYSICS FOR THE GULF OF MEXICO, by H. R. Ensminger and W. T. Morton, 1968, 18 pp. This selected bibliography is a product of an extensive literature search. The preponderance of the references selected have been published since 1950. The publications deal principally with the marine environment, however, a number of them apply to terrestrial geology and geophysics perpheral to the Gulf.
IR 68-92	CRUSTAL STRUCTURE OF THE NORTHEAST INDIAN OCEAN, 1968, 5 pp. Seismic reflection and refraction measurements indicate that four separate velocity layers exist above the mantle of this area. Their combined thickness ranges from 4 to 8 km. The Mohorovicic Discontinuity occurs at a depth of 9.3 km above sea level in several of the seismic sections shown.
IR 68-93	SUBMARINE PHYSIOGRAPHY OF SOUTHEAST ASIA, 1968, 18 pp. Various charts depicting the submarine physiography of the South China Sea area have been prepared from recent bathymetric information. This is an area of extremely complex geologic structure. Major features include five large basins, an island arc system and the continental margin.
IR 68-94	CRUSTAL STRUCTURE OF THE INDONESIAN AREA, 1968, 9 pp. Three crustal types exist within this area as shown by the accompanying profiles: a continental type north of the island arc system, an oceanic type south of Java Trench and a transitional type between.
IR 68-95	SUBMARINE PHYSIOGRAPHY OF THE NORTHEAST INDIAN OCEAN, 1968, 16 pp. Major submarine features in the northeastern section of the Indian Ocean exhibit a general north-to-south parallelism. The continental slope off Ceylon is one of the steepest in the world, however, the sea floor is comparatively level.

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IR 68-96	EARTHQUAKES, TSUNAMIS AND VOLCANOES OF SOUTHEAST ASIA, 1968, 13 pp. This report discusses the severity and areas of concentration of earthquakes, tsunamis and volcanoes which occur in the Southeast Asia area.
IR 68-97	DESCRIPTION OF A DUAL CORER FOR OBTAINING PAIRED PISTON OR GRAVITY CORES, by A. Blackman and R. S. Anderson, 1968, 8 pp. A simple method of obtaining paired cores spaced 3 meters apart with known relative azimuth is described. The instrument has been used successfully in water depths of 4000 meters.
IR 68-99	VISUAL OBSERVATION OF MANGANESE DEPOSITS ON THE BLAKE PLATEAU, by L. K. Hawkins, 1968, 19 pp. Visual observations of manganese deposits on the Blake Plateau indicate that the occurrence of manganese as nodules, slabs or pavement may be related to localized environmental conditions. Manganese is concentrated at the crests of sand waves, and in areas of gentle slope grades locally from nodules to solid pavement.
IR 68-100	ACOUSTIC ENERGY REFLECTED FROM TWO SUBBOTTOM HORIZONS IN THE EASTERN MEDITERRANEAN SEA, by J. V. Piani, 1968, 33 pp. The reflection of acoustic energy from the ocean bottom and subbottom is influenced by ocean sediments, rock forms, their boundaries, and subsequent deformation. This report presents the results of a study to determine the factors that affect this reflection capability. Data for this study was acquired in the eastern Mediterranean Sea with a Continuous Seismic Profiling System.
IR 68-101	MARINE SEDIMENTS OFF SOUTHEAST ASIA, 1968, 38 pp. This publication presents the results of a study of the bottom materials in the transitional region between the Pacific and Indian Oceans. The sediment pattern is complicated by irregular land and sea floor topography of the region. Five fundamental bottom types are distinguished, based on the average diameter of the particles making up the sediment.

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IR 68-102	FACTORS AFFECTING BIOLOGICAL OBSERVATIONS FROM THE ASWEPS AIRCRAFT, by C. Levenson, 1968, 6 pp. Marine biological observations made from aircraft provide a rapid and effective means of determining synoptic distribution patterns of large marine organisms. Relatively large near-surface organisms are more readily observed from an aircraft than from a ship. The use of aircraft as observing platforms is limited primarily by air-sea interactions which create poor observing conditions.
IR 68-103	UNDERSEA STUDIES WITH THE DEEP RESEARCH VEHICLE STAR III, by J. Pollio, 1968, 73 pp. This report describes the dives conducted by the manned submersible STAR III off Key West, Florida in March 1967. The purpose of this operation was to evaluate the STAR III system as a platform from which to conduct underwater photogrammetric and various surveying tasks.
IR 68-104	BIRDS EYE 2-68, 1-12 APRIL 1968, by R. O. Zuehls, 1968, 38 pp. Project BIRDS EYE aims to improve ice observing techniques for continuing acquisitions of statistical and historical data for present and future application of military arctic operations.
IR 68-105	CHARACTERISTICS OF SCATTERING LAYERS IN THE O ₂ MINIMUM REGION OF THE EASTERN TROPICAL PACIFIC AND THEIR RELATION TO BIOLOGICAL AND CHEMICAL PARAMETERS, by C. Levenson, 1968, 21 pp. This report presents the results of a survey taken during April and May 1967 in the O ₂ minimum region of the eastern tropical Pacific. It was found that three scattering layers exist in this region. Trawl data suggest small bathypelagic fishes and zooplankton as causes of the shallowest migrating scattering layer and large bathypelagic fishes as the cause for the deepest layer.
IR 68-107	A 350° PANORAMIC CAMERA FOR UNDERWATER USE, by R. L. Mairs and C. V. Bright, 1968, 15 pp. This report concerns the development of an entirely new concept in underwater photography; a camera capable of taking high resolution and dimensionally

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IR 68-107	precise photographic reproductions of horizontal panoramic views. This camera records almost the entire horizon on one photograph, giving a true perspective as to what was really observed. It has a field of view that includes 20° vertical and 350° around the horizon. For wide angle photography, this camera has none of the distortion characteristics of the conventional wide angle lenses.
IR 68-108	BIRDS EYE 3-68, 21 MAY - 10 JUNE 1968, by R. F. Freeman, 1968, 133 pp. Project BIRDS EYE aims to improve ice observing techniques for continuing acquisition of statistical and historical data for present and future application of military arctic operations.
IR 68-109	REQUIREMENT FOR SALINITY DATA IN THERMAL STRUCTURE PREDICTION, by R. W. James, 1968, 17 pp. This publication is a result of a study to determine whether synoptic salinity data is necessary as an input to thermal structure predictions. It was found that errors in excess of 20 percent of the predicted layer depth are possible if synoptic salinity observations are neglected in slope waters during spring and summer and only when winds are blowing.
IR 68-110	EXPERIMENTAL OBJECTIVE ANALYSIS AND NUMERICAL PREDICTION OF SEA SURFACE TEMPERATURE, by W. H. Gemmill, 1968, 47 pp. The U. S. Naval Oceanographic Office has under development computer objective analysis and numerical prediction models of oceanic variables. This paper discusses sea surface temperature primarily.
IR 68-111	OCEANOGRAPHIC CRUISE SUMMARY - GULF OF MEXICO, by R. H. Feden and R. S. Rushton, 1968, 22 pp. A reconnaissance of the Gulf of Mexico was conducted during February - June 1968. Data collected included seismic reflection profiles, 12 kHz bathymetry, 3.5 kHz normal incidence, total magnetic intensity, bottom sediments, sound velocimeter casts, Nansen casts and sea surface temperature measurements.
IR 68-112	A SURVEY OF ANTARCTIC ICE DATA, by R. A. Peterson and P. L. Chabot, 1968, 48 pp. This report presents the

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IR 68-112	results of a literature search to determine the amount of reliable antarctic ice data available to tabulate their location, coverage and other pertinent factors.
IR 68-113	BIRDS EYE 4-68, 1-16 JULY 1968, by A. C. Boeger, 1968, 201 pp. Project BIRDS EYE aims to improve ice observing techniques for continuing acquisitions of statistical and historical data for present and future application of military arctic operations.
IR 68-114	SEA SPIDER SITE SURVEY IN SUPPORT OF PROJECT PARKA, by C. L. Davis, 1968, 14 pp. This publication presents the results of a survey conducted aboard the U. S. Coast and Geodetic Survey Ship MC ARTHUR to provide detailed information for implanting a Sea Spider for use in Project PARKA operations. The survey was conducted in May 1968 in the central North Pacific Ocean.
IR 68-115	INFRARED SCANNING THE ARCTIC PACK ICE, by R. D. Ketcham, Jr. and W. I. Wittmann, 1968, 30 pp. The U. S. Naval Oceanographic Office conducted its first infrared scanning experiment in the Arctic Basin during daylight conditions in April 1964. Many miles of coincident infrared scanner imagery and vertical photography were obtained over a large area of the Arctic Basin pack ice between North Ellesmere Island and 87°N and in Baffin Bay. A surface control site for "ground truth" data was established on the pack ice at the drifting ice station ARLIS II. Several overflights at various altitudes were made in this area. This experiment demonstrated that quality sea ice information can be obtained during daylight periods using infrared scanning systems.
IR 68-116	OCEANOGRAPHIC CRUISE SUMMARY - MARINE BIOFOULING STUDIES IN MONTEGO AND OYSTER BAYS, JAIMAICA - JANUARY 1967 TO JANUARY 1968, by J. A. Bruce, 1968, 21 pp. This report presents results of biofouling studies conducted by NAVOCEANO. The 46 fouling panels recovered showed a wide diversity in fouling organisms and in the quality of biomass.

<u>IR NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 68-117	OCEANOGRAPHIC CRUISE SUMMARY - DAVIS STRAIT (JULY - AUGUST 1968), by M. T. Bourkland, 1968, 10 pp. The Naval Oceanographic Office and USCGC WESTWIND (WAGB-283) conducted an oceanographic survey in the Davis Strait area during the summer of 1968. The purpose of this survey was to study the mass transports and fluctuations of the Baffin Land and the West Greenland currents across Davis Strait through direct current measurements. Temperature, salinity and nutrient data were collected. The oceanographic stations were re-occupied to study the time variability of the parameters.
IR 68-118	A STUDY OF CLOUD PATTERNS OBSERVED FROM ESSA 3 SATELLITE PHOTOGRAPHS AND THEIR RELATIONSHIP TO SEA SURFACE TEMPERATURES IN THE EASTERN GULF OF MEXICO, by W. T. Morton, 1968, 228 pp. This study is primarily concerned with correlating cloud patterns observed from ESSA 3 weather satellite photographs with sea surface-air temperature differences existing at sea level.
IR 69-3	OCEANOGRAPHIC CRUISE SUMMARY - EAST CHINA SEA - YELLOW SEA (OCTOBER - NOVEMBER 1968), by J. M. Wageman and J. H. Osterhagen, 1969, 10 pp. An oceanographic survey was conducted from October to November 1968 aboard the R/V F. V. HUNT as part of the ASW/USW Surveys Project in a cooperative program with the United Nations Economic Commission for Asia and the Far East. Continuous seismic profiling, bathymetric, magnetic, sound velocity, suspended sediment, water color and bathythermograph data were collected to further the knowledge of the area.
IR 69-4	ARCTIC ENVIRONMENTAL ISOTOPE STUDY, 1969, 39 pp. Environmental samples consisting of sea water, sediment and biota were collected in the Barents and Kara Seas and have been analyzed for their radionuclide content and/or application of low level radionuclide detection. Although the majority of samples have concentrations of certain radioisotopes in good agreement with other samples, there are several large deviations from this comparability.

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Project BIRDS EYE aims to improve ice observing techniques for continuing acquisitions of statistical and historical data for present and future application of military operations.	
IR 69-5	BIRDS EYE 5-68 - 7-20 AUGUST 1968, by R. W. Koester, 1969, 102 pp.
IR 69-6	BIRDS EYE 6-68 - 18 SEPTEMBER - 2 OCTOBER 1968, by R. M. Barrett, 1969, 117 pp.
IR 69-8	BOTTOM ENVIRONMENTAL OCEANOGRAPHIC DATA REPORT HUDSON CANYON AREA - 1967, by R. K. Oser, 1969, 43 pp. An ocean bottom survey of an 8 x 30 mile area encompassing portions of the continental shelf and slope northeast of Hudson Canyon has been conducted. Included in the investigation were ocean floor mapping, sub-bottom reflection studies, sediment studies, bottom photography and near-bottom ocean current and temperature measurements.
IR 69-9	DISTRIBUTION OF BOTTOM SEDIMENTS OFF THE COASTS OF REPUBLIC OF SOUTH AFRICA AND SOUTHWEST AFRICA, by R. K. Nekritz and D. J. Busch, 1969, 15 pp. This study utilizes the bottom sediment data holdings of the U. S. Naval Oceanographic Office to analyze and chart the bottom sediment distribution off the coasts of the Republic of South Africa and Southwest Africa.
IR 69-10	CURRENT METER MEASUREMENTS - TONGUE OF THE OCEAN MARCH AND APRIL 1964, 1969, 39 pp. This report presents NAVOCEANO's measured current velocities in the Tongue of the Ocean (TOTO) during March and April 1964. Emphasis was placed on near-bottom current speeds.
IR 69-11	AN EMPIRICAL EQUATION FOR THE DETERMINATION OF THE MAXIMUM SIDE-ASPECT TARGET STRENGTH OF AN INDIVIDUAL FISH, by R. H. Love, 1969, 19 pp. Experiments are described in which the target strengths of a number of individual fish were measured at various frequencies. The results of these experiments are combined with results from six other sources.

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IR 69-14	SPERM WHALE ACOUSTIC CHARACTERISTIC MEASUREMENTS FROM THE ASWEP'S AIRCRAFT, by J. L. Dunn, 1969, 12 pp. Target strengths of a target believed to be a sperm whale, <u>Physeter catodon</u> , were measured. Source level measurements of echo-location clicks are presented together with sonograms and descriptions of three different types of sounds recorded.
IR 69-15	UNDERSEA STUDIES WITH THE DEEP RESEARCH VEHICLE DEEPSTAR-4000, by R. Merrifield, 1969, 82 pp. During a series of dives in October and November 1967, NAVOCEANO evaluated the Westinghouse submersible DEEPSTAR-4000 as a Deep Oceanographic Survey Vehicle (DOSV). The purpose of the dives was to conduct geological and biological observations and to measure various physical properties of the water column along the dive tracks.
IR 69-16	THE EFFECTS OF BIOFOULING ON MARINE HARDWARE: PATUXENT RIVER ESTUARY FIELD TESTS AND LABORATORY EXPERIMENTS, by E. R. Long, 1969, 5 pp. This publication describes field tests and laboratory experiments with fouling panels and current meters exposed in the Patuxent River from September to November 1967 to determine the effects of fouling on the functioning and drag of marine equipment.
IR 69-17	OCEANOGRAPHIC CRUISE SUMMARY - UNITAS IX CRUISE AROUND SOUTH AMERICA JULY TO OCTOBER 1968, by L. A. Codispoti, 1969, 14 pp. This report presents the results of oceanographic operations conducted during the UNITAS IX cruise around South America. Six Nansen cast stations were taken in tropical regions close to the coast of Brazil, and bathythermograph and bathymetric observations were made throughout the cruise.
IR 69-18	PROJECT FLOOD DATA REPORT - TYRRHENIAN SEA - OCTOBER 1966, by A. S. Barwick, 1969, 53 pp. This report presents Project FLOOD oceanographic data collected in October 1966. The data includes serial-depth temperatures and salinity; bottom sediment samples; water transparency and color observations; and bathymetric soundings.

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	The U. S. Naval Oceanographic Office's Harbor Survey Assistance Program (HARSAP) aids other nations in the surveying of ports and harbors. HARSAP provides specialized equipment and experienced hydrographic engineers to instruct and advise personnel from the host nation in hydrographic surveying techniques while actually performing a hydrographic survey. IR 69-19 and IR 69-20 present the results of such surveys.
IR 69-19	SURVEY OF PUERTO LIMON, COSTA RICA UNDER THE HARBOR SURVEY ASSISTANCE PROGRAM, by J. F. Page, 1968, 26 pp.
IR 69-20	HYDROGRAPHIC AND CARTOGRAPHIC EFFORTS IN COLOMBIA UNDER THE HARBOR SURVEY ASSISTANCE PROGRAM, by J. C. Stribling, 1969, 28 pp.
IR 69-21	FINAL REPORT OF HYDROGRAPHIC SURVEYS CONDUCTED IN TRIBOA BAY AND THE CARRASCO AND CAIMAN SHOAL AREAS, PHILIPPINES, by J. C. Stribling, 1968, 17 pp. This report describes the geodetic and hydrographic operations performed in preparation for the new port installations being constructed in Port Olongapo, Philippines.
IR 69-22	A STUDY OF DEEP OCEAN FOULING - STRAITS OF FLORIDA AND TONGUE OF THE OCEAN 1961 TO 1968, by J. R. De Palma, 1969, 26 pp. This report presents the results of a deep ocean fouling study conducted in the Straits of Florida and in the Tongue of the Ocean between June 1961 and January 1968 to determine the distribution patterns of offshore biofouling communities.
IR 69-23	COMPUTER PROGRAMS AND SUBROUTINES FOR AUTOMATED CARTOGRAPHY, by J. Parrinello, 1969, 17 pp. This report describes the development of automation in the field of cartography at the U. S. Naval Oceanographic Office.
IR 69-24	GEODETIC SURVEY GUIDELINES, by A. C. Campbell, 1969, 63 pp. This report presents a hypothetical triangulation and transverse net which serves to illustrate various geodetic problems and may be used as a guide in the preparation of geodetic reports.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-27	"SURVEYMARINE" A HIGH SPEED HYDROGRAPHIC SURVEY PLATFORM, by J. N. Spinning and D. G. Dixon, 1969, 21 pp. The development of the HYDRA Survey System family of lightweight automated hydrographic data acquisition systems by NAVOCEANO has in turn generated a new requirement for an advanced family of survey platforms. This report discusses how the unique design characteristics of a 51-foot sidewall hovercraft tested off the English Coast conclusively demonstrated the feasibility of surveying from such a platform employing the HYDRA survey system concept.
IR 69-28	SUBMARINE SEDIMENT INVESTIGATION IN THE VICINITY OF THE PLANNED SEALAB III HABITAT, by N. T. Stiles and R. S. Kessler, 1969, 18 pp. This publication presents the results of an investigation conducted in the proposed habitat area for SEALAB III for the purpose of making a preliminary study of the sediments on the basis of selected textural, compositional, and engineering properties.
IR 69-30	OCEANOGRAPHIC CRUISE SUMMARY - BLOCK ISLAND-FISHERS ISLAND ACOUSTIC RANGE (JULY - AUGUST 1967), by L. K. Hawkins and R. C. Wright, 1969, 10 pp. This report is a summary of oceanographic support given the U. S. Naval Underwater Sound Laboratory aboard the USNS SANDS (T-AGOR 6) in the Block Island-Fishers Island acoustic range. Physical, chemical and geological oceanographic data were collected in the area.
IR 69-31	MARINE MAGNETIC AND BATHYMETRIC PROFILES IN THE GULF OF CALIFORNIA - 1967, by R. C. Lohner, 1969, 18 pp. Marine magnetic and bathymetric data were recorded by the USNS CHARLES H. DAVIS (T-AGOR 5). These records, presented in profile form, reveal several distinctive magnetic features. The geological significance of these features is discussed.
IR 69-32	BOTTOM SEDIMENTS OF THE SOUTHERN GULF OF TONKIN, by J. Coleman, 1969, 24 pp. This report summarizes the findings of a study to determine sediment texture, calcium carbonate distribution, and engineering properties of bottom sediments in the southern Gulf of Tonkin.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-33	OCEANOGRAPHIC CRUISE SUMMARY - A SEISMIC SURVEY OF WILMINGTON CANYON - JULY 1968, by R. E. Morris and L. A. Sower, 1968, 12 pp. This report presents a summary of seismic reflection data collected in the Wilmington Canyon area during July 1968.
IR 69-34	OCEANOGRAPHIC CRUISE SUMMARY - NORTH ATLANTIC OCEAN EDGE OF GULF STREAM (JULY - AUGUST 1968), by R. E. Bloch, R. E. Morris and B. H. Nelson, 1968, 13 pp. This report is a summary of an oceanographic survey conducted aboard USNS LYNCH (T-AGOR 7), 200 miles south of Nova Scotia. The data collected will be used to investigate volume transport, heat budget and advection along the northern boundary of the Gulf Stream.
IR 69-35	AUTOMATION OF SECONDARY PHASE CORRECTION CHARTS AND TABLES, by M. L. Nelson, 1969, 89 pp. This report presents the computer program techniques used for processing and producing Secondary Phase Charts and Tables.
IR 69-36	BIRDS EYE 7-68 - 1-17 NOVEMBER 1968, by H. J. Agee, 1969, 127 pp. Project BIRDS EYE aims to improve ice observing techniques for continuing acquisition of statistical and historical data for present and future application of military arctic operations.
IR 69-37	OCEANOGRAPHIC CRUISE SUMMARY - BAFFIN BAY-DAVIS STRAIT-LABRADOR SEA (SUMMER 1968), by K. A. Countryman, 1969, 7 pp. This report presents the results of an oceanographic survey conducted in the Baffin Bay area during the summer 1968.
IR 69-38	BOTTOM REVERBERATION MEASUREMENTS IN THE NORWEGIAN SEA AND NORTH ATLANTIC OCEAN, by P. B. Schmidt, 1969, 28 pp. This report presents the results of bottom reverberation measurements made at six locations in the North Atlantic Ocean and Norwegian Sea. The purpose of the study was to determine the causes of variations in these measurements.
IR 69-39	A PROGRAM FOR THE STUDY OF THE EFFECTS OF MAGNETIC STORMS AND MICROPULSATIONS ON MAGNETIC AIRBORNE

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-39	DETECTORS, by J. A. Brennan, K. Smits and T. M. Davis, 1969, 20 pp. This report presents a program to study the effects of magnetic storms and micropulsation activity on magnetic airborne detectors used aboard U. S. Naval aircraft.
IR 69-40	A FREE FIELD RAPID ACCESS FORMAT FOR BT PROFILES, by W. E. Yergen, 1969, 15 pp. A format of the restructured bathythermograph file is specified. The methods used to achieve file memory requirement reduction ratio of about 9 to 1 are shown.
IR 69-41	AIRCRAFT OBSERVATIONS OF CYCLONIC EDDY SOUTH OF THE GULF STREAM, by J. C. Wilkerson, M. Bratnick and G. L. Athey, 1969, 17 pp. This report is based on six aerial surveys conducted over the Gulf Stream during March and April 1967. These surveys are significant because they provided the first aerial remote sensor data showing the formation and movement of a cyclonic eddy.
IR 69-42	THE RIVERBED ROUGHNESS AND SUBBOTTOM STRUCTURE OF THE MAIN SHIPPING CHANNEL TO SAI GON, RVN (NGA BAY, LONG TAU, NHA BE AND SAI GON RIVERS), by N. T. Stiles, L. R. Breslau and M. D. Beeston, 1969, 52 pp. This publication presents the results of an investigation of the bottom and subbottom morphology of the main shipping channel from Can Gio to Sai Gon, South Vietnam using a high frequency, shallow penetration, high spatial resolution, continuous seismic profiling system.
IR 69-45	PLANKTON DISTRIBUTION IN THE BARENTS SEA - JULY - AUGUST 1963, by J. A. Bruce, 1969, 25 pp. An oceanographic survey was conducted in the Barents Sea by the Naval Oceanographic Office aboard USS TANNER (AGS-15) from 20 July to 31 August 1963. This report presents only the results of the analyses of 44 plankton samples obtained on the survey.

Project BIRDS EYE aims to improve ice observing techniques for continuing acquisition of statistical and historical data for

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
	present and future application of military arctic operations.
IR 69-47	BIRDS EYE 8-68 - 29 NOVEMBER - 16 DECEMBER 1968, by H. J. Agee, 1969, 100 pp.
IR 69-48	BIRDS EYE 1-69 - 23 JANUARY - 7 FEBRUARY 1969, by R. W. Koester and R. F. Freeman, 1969, 107 pp.
IR 69-49	BIRDS EYE 2-69 - 23 FEBRUARY - 9 MARCH 1969, by H. P. Jerdon, 1969, 104 pp.
IR 69-50	MARINE BIOFOULING IN VIEQUES SOUND, PUERTO RICO AN INTERIM REPORT - APRIL 1964 TO FEBRUARY 1969, by J. R. DePalma, 1969, 12 pp. This publication presents the findings of a marine biofouling sam- pling program conducted in Vieques, Puerto Rico since 1964 and is to continue until May 1970. This program is one of a series of sampling pro- grams to determine the character and extent of marine fouling communities in various marine biological provinces of the world.
IR 69-51	AIRBORNE TEMPERATURE SURVEYS OF LAKE MICHIGAN OCTOBER 1966 - OCTOBER 1967, by V. E. Noble and J. C. Wilkerson, 1969, 22 pp. This report pre- sents a summary of results of flight programs carried out over Lake Michigan in 1966 and 1967 by the NAVOCEANO Anti-Submarine Environmental Prediction Services (ASWEPS). This pilot ex- periment over fresh water served to demonstrate the capabilities of the airborne instrumentation as research facilities and to provide calibration information for the application of the instrumen- tation to other than completely marine environments.
IR 69-52	PROJECT FLOOD DATA REPORT - CARIBBEAN SEA - AUGUST 1967 TO AUGUST 1968, by A. S. Barwick, 1969, 31 pp. This report presents Project FLOOD oceanographic data collected in the Caribbean Sea from August 1967 to August 1968. Most of the data were col- lected in the vicinities of Hispaniola, Puerto Rico and the Virgin Islands.
IR 69-53	THE U. S. NAVAL OCEANOGRAPHIC OFFICE'S DEEP OCEAN SURVEY PROJECT, 1969, 21 pp. The purpose of the

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-53	Deep Ocean Survey Project is to obtain information on all strategic areas to support all Navy weapon systems which must operate in the ocean medium. Additionally, this information will support scientific and economic needs.
IR 69-54	BEHAVIORAL, PHYSICAL AND ACOUSTIC CHARACTERISTICS OF HUMPBACK WHALES (MEGAPTERA NOVAEANGLIAE AT ARGUS ISLAND), by C. Levenson, 1969, 13 pp. In a continuing program to determine the areal and seasonal distribution of potential biological false sonar targets, research was conducted during a six day period in April 1968 at Argus Island. The primary purpose of this study was to observe, photograph and acoustically record humpback whales which annually migrate through this area.
IR 69-55	ENVIRONMENTAL DATA REPORT - GULF OF THAILAND - DECEMBER 1967 TO FEBRUARY 1968, by D. E. Kenney, 1969, 26 pp. The results of a joint environmental survey conducted by NAVOCEANO and the Royal Thai Navy in the Gulf of Thailand from 20 December 1967 to 21 February 1968 are presented in this report. Operations included serial-depth temperature and salinity measurements at 57 stations and current meter observations at 47 of the stations.
IR 69-56	MARINE BIOFOULING AT PENOBCOT BAY, MAINE AND PLACENTIA SOUND, NEWFOUNDLAND - 1960 TO 1968, by J. R. DePalma, 1969, 14 pp. This publication presents the results of an investigation of marine biofouling communities in Penobscot Bay, Maine and in Placentia Sound, Newfoundland from 1960 to 1968. These investigations are a part of NAVOCEANO's program to determine the character and extent of marine fouling communities in various marine biological provinces.
IR 69-57	SHALLOW WATER AMBIENT NOISE LEVELS IN THE TONGUE OF THE OCEAN - BAHAMAS - FALL OF 1965 AND SUMMER OF 1966, by J. S. Woodson and W. J. Reaves, Jr., 1969, 25 pp. Ambient noise was monitored in shallow water east of Andros Island, Tongue of the Ocean in November and December 1965 and September 1966. Data were collected

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-57	with an encapsulated, self-recording device and a stand-mounted hydrophone connected by cable to shore based instrumentation.
IR 69-59	THE "LIMITS" RETRIEVAL FUNCTIONS, by W. E. Yergen, 1969, 14 pp. The Oceanographic Live Atlas System being developed by the Research and Development Department of NAVOCEANO includes program functions for specifying geographical and seasonal limits of interest. The use of these "LIMITS" retrieval functions is described in this publication with examples.
IR 69-60	SAND RIDGE MIGRATION APALACHICOLA RIVER, FLORIDA, by R. Tittle, 1969, 23 pp. This publication presents the results of a study of the migration rate of subaqueous sand ridges measured in two reaches of the Apalachicola River, Florida from 25 June to 31 July 1968.
IR 69-61	NODC COMPUTER ARCHIVE OCEAN STATION FORMAT, by W. E. Yergen, 1969, 34 pp. This publication describes the NODC computer archive format for ocean station data. A brief discussion of methods used to achieve data compaction is included.
IR 69-62	TEST AND EVALUATION OF A SPAR-TYPE OCEANOGRAPHIC BUOY, by A. N. Kalvaitis, 1969, 25 pp. This report discusses the sea test and evaluation of a modified spar, taut-moored oceanographic/meteorologic buoy. Although the taut-moored concept shows promise, failure of the oceanographic sensor cable end termination remains a formidable problem.
IR 69-64	POTENTIAL IMPACT OF SATELLITE DATA ON SEA SURFACE TEMPERATURE ANALYSIS, by J. C. Wilkerson and V. E. Noble, 1969, 15 pp. A study is now in progress by industry under contract with NAVOCEANO to determine the impact of an improved environmental prediction capability, afforded by a satellite data collection system, upon naval mission effectiveness. As a first step of this study, a particular case of sea surface temperature (SST) measurements obtained from NASA's NIMBUS II meteorological satellite has been

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-64	compared with independent surface data and with SST analysis products to assess the capability of current satellite data for characterization of the true sea surface temperature structure.
IR 69-65	GENERAL PURPOSE PROGRAMS FOR THE CALCOMP PLOTTERS, by E. L. Mabrey, 1969, 70 pp. The programs included in this reference manual evolved from work done in filling a request for programs which would allow users to plot planar graphs on the CALCOMP Plotter. The result was two programs with considerable generality.
IR 69-66	OCEANOGRAPHIC CRUISE SUMMARY - VIEQUES ISLAND, PUERTO RICO AREA - DECEMBER 1968 TO MARCH 1969, by R. K. Oser and L. J. Freeman, 1969, 16 pp. This report is a summary of an oceanographic and geophysical survey in the proposed Deep Research Vehicles Test and Evaluation Site southwest of Vieques Island, Puerto Rico. Included in the survey were Nansen casts, bathymetry, subbottom profiling, current measurements, marine fouling studies, bottom photography, geomagnetic measurements and sediment sampling.
IR 69-68	GEOMAGNETIC PROFILES - GIBRALTAR TO NEW YORK - 1963 - 1964, 1969, 42 pp. Total magnetic intensity measurements along three survey tracks between Gibraltar and New York are presented in profile form for analysis.
IR 69-74	HYDROGRAPHIC OPERATIONS IN BLUEFIELDS, NICARAGUA CONDUCTED UNDER THE HARBOR SURVEY ASSISTANCE PROGRAM (HARSAP), 1969, 44 pp. The U. S. Naval Oceanographic Office's Harbor Survey Assistance Program (HARSAP) aids other nations in the surveying of ports and harbors. HARSAP provides specialized equipment and experienced hydrographic engineers to instruct and advise personnel from the host nation in hydrographic surveying techniques which actually performing a hydrographic survey. This report presents the results of such a survey of Bluefields Bay, Nicargua.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-75	OCEANOGRAPHIC CRUISE SUMMARY - ROSS SEA, ANTARCTICA FEBRUARY AND MARCH 1969, by M. T. Bourkland, 1969, 11 pp. This report presents results of an oceanographic survey in the Ross Sea from 25 February to 1 March 1969. Temperature and salinity data were obtained at the annual ice prediction stations along the shipping route to McMurdo and Hallett Stations, Antarctica.
IR 69-76	A TECHNIQUE FOR GRAPHIC PRESENTATION OF WATER LEVEL FORECASTS USING A TOPOGRAPHIC CONTOUR CHART FORMAT, by D. A. Burns, D. Clark and P. Martin, 1969, 13 pp. A contoured graphic format has been adapted for the presentation of water-level forecasts such that heights for any time can easily be read from monthly charts for each station. An entire year's forecast can be generated by an on-line plotter in 50 minutes. The charts will be useful in day-to-day and long-range planning of naval operations in tidal waters.
	Project BIRDS EYE aims to improve ice observing techniques for continuing acquisition of statistical and historical data for present and future application of military arctic operations.
IR 69-78	BIRDS EYE 3-69 23 MARCH - 22 APRIL, by R. F. Freeman and H. T. Agee, 1969, 198 pp.
IR 69-79	BIRDS EYE 4-69 26 MAY - 15 JUNE 1969, by H. P. Jerson, 1969, 211 pp.
IR 69-80	AN OCEANOGRAPHIC TEST SITE FOR SATELLITE INFRARED SENSORS: THE GULF OF CALIFORNIA, by P. E. LaViolette, 1969, 26 pp. Although the ability to obtain sea surface temperatures from satellite infrared sensors has been proven, the best possible resolution of these sensors has not been determined. This resolution is a function of the satellite sensor's limitations. The extent of these limitations can be found by using the data from an in-flight comparison between satellite sensors and ground stations in an ideal region.
IR 69-81	AN INVESTIGATION OF SEICHES IN DA NANG BAY, VIETNAM, by S. M. Lazanoff, 1969, 19 pp. A storm surge (seiche) model using hydrodynamical numerical techniques, has

<u>ITEM NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-81	been developed for Da Nang Bay. A comparison between predicted and observed seich periods and amplitudes indicates that the initial boundary conditions were not valid, and the seich phenomena within the bay is more complex than originally thought. Before the model can be improved, additional tide, current and wind data will be needed.
IR 69-82	ANNOTATED CATALOG OF UNCLASSIFIED SOUTHEAST ASIA PUBLICATIONS HELD BY THE COASTAL OCEANOGRAPHY BRANCH, NAVOCEANO, by R. R. Tittle and R. J. Blake, 1969, 59 pp., FOUO The involvement of this office in solving estuarine environmental problems in the Mekong Delta, South Vietnam, has resulted in the collection of a wide range of directly or indirectly applicable data. To facilitate our own organization of this material and to allow for its utilization by other interested personnel, this annotated catalog was prepared.
IR 69-83	OXYGEN CONSUMPTION AND BODY WEIGHT IN THE MARINE AMPHIPOD, PARATHEMISTO GUADICHAUDI (GUERIN), by L. W. Shearer, 1969, 13 pp. Oxygen consumption was determined micro-volumetrically for specimens of <u>Parathemisto guadichaudi</u> (Guerin) taken in a six foot Issacs-Kidd midwater trawl at several stations in the Norwegian Sea and North Atlantic Ocean during the summer of 1967.
IR 69-84	OXYGEN CONSUMPTION AND BODY WEIGHT IN THE SARGASSUM SHRIMP LEANDER TENUICORNIS (SAY), by L. W. Shearer, 1969, 9 pp. Oxygen consumption rates have been determined for eight specimens of the Sargassum shrimp, <u>Leander tenuicornis</u> (Say) at 25°C. The average weight-specific oxygen consumption rate determined for this species is 451.7mm ³ /gram wet weight/hour. This value is intermediate between the rates reported for various shrimps at temperatures between 6°C and 32°C.
IR 69-85	THE USE OF DIFFERENTIAL OMEGA IN DETERMINING TRUE SHIP'S VELOCITY, by D. M. Peay, 1969, 41 pp. In January 1969, while conducting survey operations, the USNS KEATHLEY evaluated Differential Omega as a method of determining true ship's velocity. Differential Omega techniques were applied in this particular test by establishing a monitor station near Coral Gables, Florida.

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 69-86	OCEANOGRAPHIC CRUISE SUMMARY - MARINE BIOFOULING STUDIES OFF OAHU, HAWAII, by E. R. Long, 1969, 13 pp. This report presents the findings of bio-fouling studies being conducted off Oahu, Hawaii by NAVOCEANO. These studies will provide marine scientists with data which relate to the performance of underwater systems and other marine hardware.
IR 69-87	LORAN TABLE EDITING PROCESS, by K. A. Jennings, 1969, 49 pp. This report is a description of the programs and procedures used at the Oceanographic Office in the production of Loran-A and Loran-C tables. Coding instructions, flow diagrams, FORTRAN listings, glossaries and samples of output have been included.
IR 69-88	GENERAL CONCEPTS AND A BRIEF HISTORY OF SUBMARINE SOIL MECHANICS, by E. V. Achstetter, J. H. Kravitz and J. B. Rucker, 1969, 24 pp. The emplacement of structures on the sea floor has generated growing interest in the engineering characteristics of marine sediments. Results of studies in this area are presented in this report.
IR 69-90	REPORT OF THE INITIAL SURVEY IN A STUDY OF THE EFFECT OF DREDGING ON THE CORAL REEF DEVELOPMENT AUTEC SITE 1, by H. D. Huddell, 1969, 40 pp., POUO NAVOCEANO conducted a biological survey at AUTEC Site 1. This survey was designed to ascertain the effect of future dredging on the nearby coral reef communities. Coral growth in the survey area was scattered and stunted as compared to the growth on other parts of the Andros Reef. Numerous sponges encountered are expected to provide an indication of the effect of future dredging activities.
IR 69-91	OCEANOGRAPHIC EVALUATION OF A DEEP WATER ISOTOPIC CURRENT ANALYZER (DWICA), by L. A. Benchero and N. R. Andersen, 1969, 17 pp. An instrument which is designed to measure current speed and direction by measuring the travel time of a neutrally buoyant radiotracer solution injected into the water has been tested in the ocean with savonius rotor current meters. Comparison of data from two types of current meters display similar trends in current speed fluctuations.

PUB NOTITLE/NOMENCLATURE

IR 69-92

ANALYSIS OF WATER MASS AT PACIFIC OCEAN STATION VICTOR, 1964-1965, by E. L. Corton, 1969, 20 pp. Analysis of 271 Nansen casts obtained during four 3-week cruises at ocean weather station (OWS) VICTOR between March 1964 and June 1965 showed that seasonal influence extended from the surface to 150 meters. Observations at a single location can be used for predicting water mass variability; however, synoptic observations around that location are required for predicting mesoscale changes.

IR 69-94

THE UPPER AND DEEP SOUND CHANNEL IN THE NORTH-EAST ATLANTIC, by D. F. Fenner and P. J. Bucca, 1969, 40 pp. Analysis of extensive historical sound velocity profile data east of the Mid-Atlantic Ridge between 20°N latitude and Iceland indicates that warm, saline Mediterranean Intermediate Water and the effects of annual heating and cooling are responsible for marked departures from the basic trilinear vertical sound velocity structure found in most open ocean areas. Temperature-salinity and sound velocity comparisons for 12 selected locations throughout the Northeast Atlantic Ocean are presented in the appendix.

IR 70-1

THE DATA BASE OF THE NAVAL OCEANOGRAPHIC LIVE ATLAS, by W. E. Yergen, 1970, 19 pp. The reasoning and methods used to structure the data base of the Naval Oceanographic Live Atlas are discussed. This is the first part of an intended three-part series describing methods used to implement the Naval Oceanographic Live Atlas.

IR 70-3

TEST AND EVALUATION OF THE HYDRA SURVEY AND DATA PROCESSING SYSTEM, by J. N. Spinning, M. G. Paradis, D. G. Dixon, J. P. Fletcher and D. S. Von Nieda, Jr., 1970, 80 pp. Rapid dissemination of detailed hydrographic information is essential for conducting successful military or merchant marine operations. This report highlights the final field test and evaluation of the HYDRA Survey/ADP System, an automated hydrographic

<u>PUB NO</u>	<u>TITLE/NOMENCLATURE</u>
IR 70-3	data acquisition and field processing system designed for rapid deployment to areas of need by air transport.
IR 70-5	DEEP WATER AMBIENT NOISE LEVELS IN THE TONGUE OF THE OCEAN - BAHAMAS (FEBRUARY 1965), by J. S. Woodson, 1970, 13 pp. In February 1965, ambient noise was measured at a depth of 250 feet in 3400 feet of water near Andros Island, Tongue of the Ocean utilizing a buoyed self recording instrument. Noise levels were low during daylight hours and high at night indicating the noise generators to be primarily biological. Neither tides nor did winds appear to be a factor in causing variances of levels in the data.

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CANCELED PUBLICATIONS

<u>PUB NO</u>	<u>TITLE</u>
IOM 3-61	WAVE SPECTRA STUDY - FIELD REPORT
IOM 21-61	OCEANOGRAPHIC CONDITIONS IN FOUR SELECTED AREAS OFF CAPE HATTERAS DURING THE PERIOD 27-31 JULY 1961
IOM 20-62	PERSISTANCE OF COMPOSITE SEA SURFACE TEMPERATURE PATTERNS FOR FEBRUARY 1958-1961 OFF CAPE HATTERAS
IMR 0-37-62	OCEANOGRAPHIC STUDY - UNITAS II (22 SEPTEMBER - 20 OCTOBER 1961)
IM 0-41-62	OCEANOGRAPHIC CONDITIONS DURING THE TESTING AND EVALUATION OF THE AN/SQS-26 (XN-1 EDO) SONAR
IMR 0-62-62	BIRDS EYE 4-62 (19 JULY - 2 AUGUST 1962)
IMR 0-69-62	AUTOMATION OF OCEANOGRAPHIC ANALYSIS AND PREDICTION
IMR 0-10-63	BIRDS EYE 2-62 (27 APRIL - 8 MAY 1962)

CANCELED PUBLICATIONS

<u>PUB NO</u>	<u>TITLE</u>
IMR 0-12-63	BIRDS EYE 5-62 (19-23 AUGUST 1962)
IMR 0-13-63	BIRDS EYE 6-62 (22-30 SEPTEMBER 1962)
IMR 0-14-63	BIRDS EYE 7-62 (18-29 OCTOBER 1962)
IMR 0-35-63	BIRDS EYE 8-62 (6-18 DECEMBER 1962)
IMR 0-40-63	EVALUATION OF U. S. NAVAL OCEANOGRAPHIC OFFICE LAYER DEPTH CHARTS
IMR 0-44-63	POST OPERATIONAL REPORT - RED WHEEL
IMR 0-54-63	COMPARISON OF U. S. NAVAL OCEANOGRAPHIC OFFICE TEMPERATURE AND LAYER DEPTH CHARTS WITH USNS DAVIS SURVEY DATA
IMR 0-6-64	BIRDS EYE 1-62 (25 MARCH - 5 APRIL 1962)
IMR 0-8-64	BIRDS EYE 3-62 (19-28 JUNE 1962)
IMR 0-14-64	BIRDS EYE 2-64 (20 FEBRUARY - 3 MARCH 1964)
IMR 0-18-64	OCEANOGRAPHIC STUDY - CANUS-SLAMEX
IMR 0-27-64	MARK III AIRBORNE RADIATION THERMOMETER
IMR 0-30-64	BIRDS EYE 1-63 (22 FEBRUARY - 9 MARCH 1963)
IMR 0-31-64	BIRDS EYE 2-63 (22 MARCH - 5 APRIL 1963)
IMR 0-32-64	BIRDS EYE 3-63 (19 APRIL - 5 MAY 1963)
IMR 0-33-64	BIRDS EYE 4-63 (24 MAY - 5 JUNE 1963)
IMR 0-34-64	BIRDS EYE 5-63 (12-26 JULY 1963)
IMR 0-35-64	BIRDS EYE 6-63 (16-28 AUGUST 1963)
IMR 0-36-64	BIRDS EYE 7-63 (27 SEPTEMBER - 9 OCTOBER 1963)
IMR 0-37-64	BIRDS EYE 8-63 (29 NOVEMBER - 11 DECEMBER 1963)

CANCELED PUBLICATIONS

<u>PUB NO</u>	<u>TITLE</u>
IMR 0-38-64	BIRDS EYE 1-64 (25 JANUARY - 5 FEBRUARY 1964)
IMR 0-39-64	BIRDS EYE 3-64 (2-16 APRIL 1964)
IMR 0-49-64	BIRDS EYE 4-64 (23 APRIL - 4 MAY 1964)
IMR 0-59-64	BIRDS EYE 5-64 (24 JULY - 1 AUGUST 1964)
IMR 0-60-64	BIRDS EYE 6-64 (9-23 AUGUST 1964)
IMR 0-61-64	BIRDS EYE 7-64 (4-19 SEPTEMBER 1964)
IMR 0-65-64	COMPARISON OF U. S. NAVAL OCEANOGRAPHIC OFFICE SEA SURFACE TEMPERATURE CHARTS WITH USNS GILLISS SURVEY DATA
IMR 0-5-65	BIRDS EYE 8-64 (18 OCTOBER - 6 NOVEMBER 1964)
IMR 0-6-65	BIRDS EYE 9-64 (9-19 DECEMBER 1964)
IMR 0-7-65	BIRDS EYE 1-65 (12-25 JANUARY 1965)
IMR 0-12-65	BIRDS EYE 2-65 (10-23 FEBRUARY 1965)
IMR 0-16-65	BIRDS EYE 3-65 (11-26 MARCH 1965)
IMR 0-20-65	BIRDS EYE 4-65 (9-24 APRIL 1965)
IMR 0-24-65	OCEANOGRAPHIC STUDY - CONVEX 3-64 (10-14 AUGUST 1964)
IMR 0-32-65	BIRDS EYE 5-65 (27 MAY - 10 JUNE 1965)
IMR 0-38-65	BIRDS EYE 6-65 (8-22 JULY 1965)
IMR 0-46-65	ASWEPS - MEDITERRANEAN EXERCISE (11-21 JULY 1964)
IMR 0-47-65	BIRDS EYE 7-65 (9-26 AUGUST 1965)
IMR 0-48-65	BIRDS EYE 8-65 (14-25 SEPTEMBER 1965)
IMR 0-54-65	COMCARDIV 17 EXERCISE AND IPOSSE EVALUATION (29 NOVEMBER - 9 DECEMBER 1963)

CANCELLED PUBLICATIONS

<u>EDN NO</u>	<u>TITLE</u>
IMR 0-2-66	BIRDS EYE 9-65 (12-18 OCTOBER 1965)
IMR 0-3-66	BIRDS EYE 10-65 (6-22 NOVEMBER 1965)
IMR 0-4-66	BIRDS EYE 11-65 (4-18 DECEMBER 1965)
IMR 0-5-66	BIRDS EYE 1-66 (28 JANUARY - 3 FEBRUARY 1966)
IM 66-19	BIRDS EYE 2-66 (6-14 MARCH 1966)
IM 66-20	BIRDS EYE 3-66 (11-27 APRIL 1966)
IM 66-21	BIRDS EYE 4-66 (16-29 JUNE 1966)
IM 66-25	BIRDS EYE 5-66 (12-22 JULY 1966)
IM 66-29	BIRDS EYE 6-66 (6-28 AUGUST 1966)
IM 66-30	BIRDS EYE 7-66 (28 SEPTEMBER - 8 OCTOBER 1966)
IM 66-32	BIRDS EYE 8-66 (25 OCTOBER - 7 NOVEMBER 1966)
IM 66-33	BIRDS EYE 9-66 (21 NOVEMBER - 11 DECEMBER 1966)
IR 67-23	BIRDS EYE 1-67 (15-28 JANUARY 1967)
IR 67-81	BIRDS EYE 2-67 (15 MARCH - 19 APRIL 1967)
IR 67-82	BIRDS EYE 3-67 (30 JUNE - 10 JULY 1967)
IR 67-83	BIRDS EYE 4-67 (10-22 AUGUST 1967)
IR 67-94	MARINE GEOPHYSICAL SURVEY DATA REGISTER - NW ATLANTIC AREA 1